

CLAIMS

1. Apparatus comprising:

a chamber having a chamber inlet and a chamber outlet;

a first inlet for receiving a first gas stream;

a second inlet for receiving a second gas stream;

a first outlet for outputting the first gas stream to a first vacuum pump;

a second outlet for outputting the second gas stream to a second vacuum pump;

a conduit network for connecting the first inlet to the first outlet and for connecting the second inlet to the second outlet such that, for each gas stream, first and second flow paths are defined between its respective inlet and outlet, the first flow path passing through the chamber inlet and the chamber outlet, and the second flow path by-passing the chamber; and

means for routing the gas streams through the network such that when one gas stream flows along its first flow path, the other gas stream flows along its second flow path.

2. Apparatus according to Claim 1, wherein part of the second flow path for the first gas stream is common to the second flow path for the second gas stream.

3. Apparatus according to Claim 1 or Claim 2, wherein, for each gas stream, the first flow path is isolated from the second flow path.

4. Apparatus according to any preceding claim, wherein the routing means comprises a first valve system located within the conduit network, and means for controlling the first valve system to route the first gas stream from the first inlet to a selected one of its first and second flow paths, and to route the second gas stream from the second inlet to a selected one of its first and second flow paths.

5. Apparatus according to Claim 4, wherein the routing means comprises a second valve system located within the conduit network, and means for controlling

the second valve system to route the first gas stream from its selected flow path to the first outlet, and to route the second gas stream from its selected flow path to the second outlet.

- 5 6. Apparatus according to Claim 4 or Claim 5, wherein the, or each, controlling means is configured to control the degree of opening of valves of the valve systems.
- 10 7. Apparatus according to any of Claims 4 to 6, wherein the, or each, controlling means is configured to control the duration for which valves of the valve systems are opened.
- 15 8. Apparatus according to any of Claims 4 to 7, wherein the, or each, controlling means is configured to allow a predetermined delay between opening of valves of the valve systems to ensure all gas in any common sections of conduit has been exhausted before a new gas is introduced.
- 20 9. Apparatus according to any preceding claim, comprising a third inlet for receiving a third gas stream, and wherein the conduit network connects the third inlet to the first outlet such that, for the third gas stream, a first flow path is defined between the third inlet and the first outlet which passes through the chamber inlet and the chamber outlet.
- 25 10. Apparatus according to Claim 9, wherein the routing means is configured to route the gas streams through the network such that when the third gas stream flows along its first flow path, the first and second gas streams flow along their second flow paths.
- 30 11. Apparatus according to Claim 9 or Claim 10, wherein the conduit network connects the third inlet to the first outlet such that, for the third gas stream, a second flow path is defined between the third inlet and the first outlet which bypasses the chamber, the routing means being configured to route the gas streams

through the network such that when one of the gas streams flows along its first flow path, the other gas streams flows along their second flow paths.

12. Apparatus according to Claim 11, wherein the routing means comprises a third valve system located within the conduit network, and means for controlling the third valve system to route the third gas stream from the third inlet to a selected one of its first and second flow paths.

13. Apparatus according to any preceding claim, wherein the chamber inlet and the chamber outlet are configured to provide an even flow distribution over a working section of the chamber.

14. Apparatus for conveying gases to and from a chamber, the apparatus comprising:

- a first inlet for receiving a first gas stream;
- a second inlet for receiving a second gas stream;
- a first outlet for outputting the first gas stream;
- a second outlet for outputting the second gas stream;
- a first chamber port connectable to an inlet of the chamber;
- a second chamber port connectable to an outlet of the chamber;
- a conduit network for connecting the first inlet to the first outlet and for connecting the second inlet to the second outlet such that, for each gas stream, first and second flow paths are defined between its respective inlet and outlet, the first flow path passing through the chamber ports, and the second flow path by-passing the chamber ports; and

means for routing the gas streams through the network such that when one gas stream flows along its first flow path, the other gas stream flows along its second flow path.

15. Apparatus according to Claim 14, wherein part of the second flow path for the first gas stream is common to the second flow path for the second gas stream.

16. Apparatus according to Claim 14 or Claim 15, wherein, for each gas stream, the first flow path is isolated from the second flow path.

17. Apparatus according to any of Claims 14 to 16, wherein the routing means comprises a first valve system located within the conduit network and means for controlling the first valve system to route the first gas stream from the first inlet into a selected one of its first and second flow paths, and to route the second gas stream from the second inlet to a selected one of its first and second flow paths.

18. Apparatus according to Claim 17, wherein the routing means comprises a second valve system located within the conduit network, and means for controlling the second valve system to route the first gas stream from its selected flow path to the first outlet, and to route the second gas stream from its selected flow path to the second outlet.

19. Apparatus according to Claim 17 or Claim 18, wherein the, or each, controlling means is configured to control the degree of opening of valves of the valve systems.

20. Apparatus according to any of Claims 17 to 19, wherein the, or each, controlling means is configured to control the duration for which valves of the valve systems are opened.

21. Apparatus according to any of Claims 17 to 20, wherein the, or each, controlling means is configured to allow a predetermined delay between opening of valves of the valve systems to ensure all gas in any common sections of conduit has been exhausted before a new gas is introduced.

22. Apparatus according to any of Claims 14 to 21, comprising a third inlet for receiving a third gas stream, and wherein the conduit network connects the third inlet to the first outlet such that, for the third gas stream, a first flow path is defined

between the third inlet and the first outlet which passes through the first and second chamber ports.

23. Apparatus according to Claim 22, wherein the routing means is configured to route the gas streams through the network such that when the third gas stream flows along its first flow path, the first and second gas streams flow along their second flow paths.

24. Apparatus according to Claim 22 or Claim 23, wherein the conduit network connects the third inlet to the first outlet such that, for the third gas stream, a second flow path is defined between the third inlet and the first outlet which bypasses the chamber ports, the routing means being configured to route the gas streams through the network such that when one of the gas streams flows along its first flow path, the other gas streams flows along their second flow paths.

25. Apparatus according to Claim 24, wherein the routing means comprises a third valve system located within the conduit network, and means for controlling the third valve system to route the third gas stream from the third inlet to a selected one of its first and second flow paths.

26. A method for conveying gases to and from a chamber, comprising the following steps:

connecting to the chamber a conduit network having

a first inlet for receiving a first gas stream;

a second inlet for receiving a second gas stream;

a first outlet for outputting the first gas stream;

a second outlet for outputting the second gas stream;

a first chamber port connectable to an inlet of the chamber;

a second chamber port connectable to an outlet of the chamber; and

a network of conduits for connecting the first inlet to the first outlet and for connecting the second inlet to the second outlet such that, for each gas stream, first and second flow paths are defined between its respective inlet and outlet, the

first flow path passing through the chamber ports, and the second flow path by-passing the chamber ports; and

routing the gas streams through the network such that when one gas stream flows along its first flow path, the other gas stream flows along its second flow path.